TEACHERS COLLEGE RECORD

VOL. XV MARCH, 1914 No. 2

## A STUDY OF GEOGRAPHY IN NORMAL SCHOOLS

Inasmuch as teachers in elementary schools are largely trained for their work in the public and private normal schools and city training schools, a study of the work in geography in normal schools gives an index as to the adequacy of the training of teachers for geography work in elementary schools. Obviously the character of possible work in geography in normal schools depends upon the preparation of pupils on entrance, on the length of the training course, and on the number of subjects that pupils are expected to cover in their training period.

In order to make a comparative estimate of the geography offering in the public normal schools of our country, a study was made of the work in one hundred and forty-four schools of this class. The larger amount of information was secured from the published announcements of the several schools, but this was greatly supplemented by personal letters from administrative officers and teachers of geography, as well as by conference with many workers in the field.

Of the one hundred and forty-four schools studied, seven admit elementary school graduates to a course in elementary teaching usually consisting of four years. In these seven schools, four offer no geography; two require work in physical geography; one in physical, continental and commercial geography; and one offers elective work in physiography and map modeling.

In by far the larger number of cases admission to the course for training for work in the elementary schools, is high school

graduation, or its equivalent. While some normals admit in both ways, others admit students by examination—details thereof not given—and seemingly others admit on personal inspection of the candidate by some school officer. The usual normal school course is a two-year course beyond a high school, and it is of these schools that this study has been made.

In the one hundred and forty-four schools studied, geography is offered in some form in one hundred and thirty-one, and is required in some quantity in one hundred and three. In one hundred and nine schools offering a two-year course beyond a high school, geography is required in varying amounts in seventy-eight. Of the thirteen schools making no mention of geography five offer courses in geology, of which one offers eight courses in geology.

In the one hundred and nine normals offering geography in some form, no electives are offered in fifty-five. The maximum requirement found was three courses, five hours each for a half year; the minimum was thirty hours and the average perhaps one hundred hours. In many instances elective courses based on the required work are offered, and in a few cases students may continue in a degree-giving course and secure more geography. In many schools the work is given entirely through courses in methods of teaching, but in an increasing number of schools, departments of geography are maintained in an efficient manner, and work beyond the immediate review needs of the pupil-teachers is offered. The table on page 3 showing the offering in ten schools requiring high school graduation for admission to a two-year professional course will indicate the variety in the geography opportunities. The details here shown are taken at random in the order of original study of work.

A summary of the work throughout the country indicates that the amount of training in geography is, in general, inadequate in quantity, and often in quality, as a preparation for teaching one of the five fundamental subjects in the elementary schools, at least to one especially interested in geography. This inadequacy in quantity is recognized by many enthusiastic teachers of geography and by some administrative officers, but the interest in improvement is not general as is indicated by the following detailed statements.

| AMOUNT OF REQUIRED GEOGRAPHY | NATURE OF WORK REQUIRED | GEOGRAPHY ELECTIVES OFFERED |
|---|---|---|
| 1 term | Methods | Geography and physiography |
| 1 term | General geography, methods | North America, Eurasia, commercial geography |
| 100 hours | Principles | Methods, local geography |
| 0 | | Political and physical geography |
| ½ year | Physical geography | 0 |
| 2 courses | Physical, economic and regional | Physiography, agricultural geography, principles, methods, Europe, economic geography, social and historical geography |
| 16 weeks | General and physical | 0 |
| 2 hours, ½ year. | Not stated | Map drawing, methods, North America, regional geography, physiography, meteorology, economic geography, Europe |
| 4 hours, 1 term. | Physiography | General geography, social geography of North America, of South America, of Europe, state geography, commercial geography, geography and American history |
| 0 | | Industrial geography, physiography |

In one of the largest normal schools no work is prescribed, but three courses are offered and two given. The character of the work in this school is indicated by the following excerpt:

"In our physical geography course we cover the text-book in twenty-four weeks, five recitations of fifty-five minutes each week. We do no laboratory work in the subject; this work consists simply of text-book assignments and recitations on these assignments. The subject is taught by the head of the physics department who has no time to devote to any outside work in the way of field study, study of contour maps, or any work of that kind.

"In our course in descriptive geography, we use ——— book on geography method as a text. The course covers twelve weeks and is given primarily to students who expect to teach

in the rural schools. We devote six weeks to a study of the text, two to three weeks to a study of modeling, map making and other modes of expression. The last few weeks are devoted to a study of the state course of study with particular reference to geography.

"We have no head of the geography department and the Principal tells me that he does not consider the geography work in any normal school to be of sufficient importance to justify the institution in adding a head of the geography department."

From one of the more progressive normal schools of the country comes the statement that for high school graduates "one term of geography"—so called "review," is required. "This course combines the work of method and subject matter, dealing with the elements of geography, with which we spend the larger portion of the term. While our students come from high schools, about forty per cent of them have had no geography whatever beyond the seventh or eighth grades."

From one of the states most widely known and praised for its excellent work in normal school geography, some illuminating facts have recently been given as to the geography preparation at admission and at graduation from three large normal schools. Of 1678 high school graduates admitted to these three schools, 28 per cent had no geography in the high school, 34 had one-half year's work, 30 per cent had one year's work, and 8 per cent had one and one-half year's work. Of 648 graduates from these normal schools graduated with a life certificate, 41 per cent had no geography work while in training, 42.3 per cent had one twelve-weeks term, 12.5 per cent had two terms of the same length, 2.3 per cent had three terms, 1.3 per cent had over three terms.

The general deficiency in geographic training of senior students in normal schools is recognized in many localities, but not generally so. One large normal now requires the passing with high standing of an examination in locative geography before admission to the senior year, thus indicating that others besides the geography specialist recognize the general need of a knowledge of the A B C's of ordinary school geography.

However unsatisfactory may be the time given to geography

in normal schools, the use of the time available is even more discouraging when the field as a whole is viewed. Of the required courses in geography given in the schools studied, 38 are physiography, 9 are commercial geography, 66 are methods, 29 are "geography," 48 are regional geography and review, 5 are principles, 2 geography and history, 1 is map drawing, and 3 are geology. Or of the 200 courses in geography, 50 are high school in type, and 140 are either methods courses or regional courses. Of the latter, the larger number are merely review courses of elementary school geography, as the description of text-book used will indicate.

Of the elective courses offered in the two years' normal courses, numbering in all 162, 41 are physiography (5 advanced in type), 27 are commercial geography, 25 are methods, 9 are "geography," 6 are entitled principles, 6 are rural school geography, 42 are regional geography, largely review courses, 4 are geography and history and 2 are devoted to map drawing.

The emphasis is given in the large to a review of the elementary facts of geography which form the larger portion of elementary school courses, and to methods of teaching in elementary schools. With this limited attention to geography in our normal schools, and with the work, except in a few shining instances, either high school physiography, methods or review of elementary texts, is it any wonder that geography is so widely considered merely a children's subject that has not grown up? In a few institutions, slowly but surely increasing in number, specially trained teachers are giving work in geography of very superior quality. They are the beacons that are pointing the way to the more conservative schools on the one hand, and, on the other, to the newer institutions in which the requirements in education are so great that a serious study of the materials of the elementary subjects is impossible. This sad picture with its uninspiring general tones, has a few high lights that catch the eye and redeem the composition as a whole.

The causes of these conditions are many. In the first place, educational theory and practice, as important to the prospective teacher as is the knowledge of materials, in many institutions are over emphasized, and little time is left for the study of so-called academic subjects, other than from the bread and butter

point of view. In the second place, pupils who enter the normal schools from a high school course have, as a rule, no knowledge of geography beyond that gained in the sixth or seventh grade of the elementary schools. Elementary school geography is rightly, and probably will remain, largely regional geography with an increasing emphasis in the higher grades of causal regional geography, culminating in a study of the reasons for economic and social conditions. High school courses of study in geography are usually specialized courses in physical geography or physiography, or in commercial geography. Thus the geographic training of the prospective teacher, on admission to the normal school, has been away from the field of elementary geography, and the normal school teacher of geography must bridge the gap as effectively as his limited time will permit.

Three methods of procedure are possible. The easiest for the teacher not trained in higher geography, is to review the details of elementary school work, as is so frequently done. The pupil-teachers thus go out to their work with a preparation little beyond that of the pupils in the upper grades and rarely with any new point of view that will make it possible for them to vivify a subject deadened by a mass of detail. The margin of safety of the young teachers is slight, the ice is always thin, and they naturally expose themselves to the dangers of the subject as little as possible.

The second plan, the systematic, is to organize the normal school work so as to treat in turn the underlying principles of geography, some special continent from a causal standpoint, and methods of teaching geography in elementary schools.

A typical plan followed in many schools is indicated by the following official statement from one of the newer normal schools:

GEOGRAPHY

(This subject is required three hours per week throughout one year)

The course aims to give an understanding of the control which climate, surface and other geographic factors exert over the life of man and animals upon the globe; a knowledge of and ability to use the authoritative source material available; the ability to read maps, and some of the best ways of presenting the subject to children.

The first half year's work is devoted to a study of mathematical geography, the atmosphere, the lands, the work of running water, and the oceans.

As much field work as possible is done in this connection, as the school is particularly well situated for it.

The first half of the second semester is devoted to the study of the continent of North America and the countries of Europe most closely connected with us through trade. Through this study the pupils are expected to gain an insight into the method of continent study for the grammar grades. Particular emphasis is laid upon the influence of geographic environment in determining routes of trade, location of industrial centers, and the distribution of commodities.

The work in methods of teaching geography is left until the last quarter in order to take advantage of the instruction in the art of questioning and in making lesson plans given in the course in General Methods. The chief divisions of the work are a study of the content of geography; determining factors in arranging subject-matter for different grades; methods of teaching as applied to subject-matter determined for each grade. Each student prepares lesson plans for different grades and teaches the class.

This complete cycle is often cut by omitting the regional treatment, or the work is confined entirely to an elementary study of physical geography. This phase of geography is naturally the easiest to teach, because of the number of excellent physical geography texts and laboratory guides. To stop with this phase of the work is to give an over-emphasis to foundations, and not enough to the applications of physical geography in the interpretation of regional geography, the larger phase of elementary school geography.

In many schools, a compromise plan is followed whereby the elements of physical geography are followed by a study of economic or commercial geography, often from a regional standpoint. Commercial geography, as ordinarily presented in textbooks, is a study of facts, rather than a presentation of the relationship between economic conditions and physical and economic causes which explain the conditions. Physical and commercial geography are often presented in too great detail to be adequately studied in the time allowed.

The problem of making pupil-teachers efficient in geography involves the presentation of facts and principles in part; but the larger aim of the work must be to give a power of work in the field, and an ability to organize and use from an advanced viewpoint the familiar materials of school geography. The best training does not, therefore, involve a necessary review of the whole elementary field, but a new method of work that will give power and insight. One continent studied so as to bring

out the geographic relations is a better basis for future good work than several continents reviewed hastily, item by item, in a stereotyped manner.

While this systematic order of treatment has many points in its favor, its blind use by the poorly trained teacher presents many dangers, for the emphasis may be put too much on details. Knowledge may be replaced by information and power yield to memory training.

The revivification of school geography, long misunderstood and unappreciated because so largely devoted to detail in memorizing myriads of items, all of questionable permanent value, depends upon the right point of view on the part of the normal school teachers. If the best training in geography is that which gives the students the best knowledge of essentials, and the best power to organize and evaluate details, the method of study to be followed in normal schools is that which will give the best outlook upon the field, and best awaken the mind of the pupil to the opportunities in geography and to its problems.

A teacher skilled in the systematic causal method of presentation from causes to human consequences, can give the needed power through this plan of procedure. But the time granted to geography in many schools must of necessity be too limited to permit a study of even the elements of geography in a systematic way, beginning with the principles and leading to the higher phases of human geography. Further, this plan is so time honored in its elements that pupils are so often completely under the spell of their preconceptions that it is difficult to awaken an intellectual interest through this plan. Geography is a large subject and the emphasis should be on geography and not merely on selected phases of the subject. However alluriug physical geography is, it is only a part of the subject, and should be studied by future elementary teachers not as an end in itself, but as a means to an end. It should be used in the later study of human geography, which occupies most of the courses of study in elementary schools.

It is often desirable to approach geography, therefore, through the analysis of human consequences, rather than by a study of the underlying principles. Such an analytic method is being tried by many teachers with success. It has its difficulties,

however, because of the lack of text-books and laboratory equipment adapted to this method. This plan of procedure involves the problem method which is now much discussed in secondary school science work. Problems can be organized where the work begins with a study of the mathematical and physical phases of geography, but the geographical problems of life are problems of human distribution and relationships, and problems involving a study of the reasons for present social conditions.

With the availability of such cheap and usable atlases as Bartholemew's " School Economic Atlas," or Dierckes' " Schul Atlas," it is easily possible to introduce pupils to many problems of human geography through the maps. These can be followed up by the use of the many excellent texts in physical and commercial geography, especially those which have the modern viewpoint in reference to these phases of the subject. The following problems, among others, may be used in such an introduction. These given are based on Bartholemew's Atlas and have been tested in class with students with little or no special training in geography.

THE DISTRIBUTION OF THE PEOPLE OVER THE WORLD.

Where are the most dense populations of the world ?
In what continents ? In what portions of these continents ?
Where are the largest areas of dense population ?
Describe the location of areas of dense population in reference to latitude 40° N; in reference to bordering oceans.
What continents have an average sparse population ?
What portions of these continents have centers of greater density of population ?

RELATION OF MAN TO VEGETATION REGIONS.

What is the natural form of vegetation in regions of dense, of thin, and of sparse population ?
What favoring conditions for man do woodland and grass areas offer ?
What are the chief occupations of man in forests, woodland and grass areas, steppes and deserts ?

What are the principal soil products in areas of dense population ?

Where are the regions of greatest commercial development as related to density of population and vegetation ?

Where are the regions of least commercial development ?

What ocean is the seat of the largest commerce ?

What are the occupations of man in the sections of greatest commercial development ?

Does commerce depend largely on soil products ?

What would you expect to be the chief exports from South America, Africa and Australia ? Why ?

Why are the United States and Europe more generally engaged in commerce than Asia and Australia ?

SUMMARY.

What are the chief conditions underlying the commercial development of a country ?

(Bring out the evident significance of location, climate, character of vegetation, surface, mineral wealth, routes of transportation and racial distribution as a basis for a later development of commerce and political strength.)

Such an introduction leads to an analysis of the geographical reasons for human conditions over the world in a systematic way. If pupils' minds are once opened to the problems of geography to be seen about them, or to be gained from map and text study and correlation, the problem method can be worked out in the details of physical, economic and regional geography. The field of geography work in normal schools, unfortunately, is not far different in scope from the work desirable in earlier secondary work, because so few normal school pupils have had an adequate high school training in geography. Normal school, secondary school, and college geography work are very intimately related and many of the unsatisfactory phases of normal school geography are due to the previous inadequacy and inefficiency of college and secondary school geography.

If our high school geography were largely causal regional geography, scientifically studied, our high school graduates would enter the normal schools with a knowledge of regional

geography far beyond that gained in the elementary school. They would have a ground work for taking up in the normal schools the advanced study of geography and geography teaching, and would go out prepared to teach elementary school geography more effectively.

If our colleges will turn out teachers for the high schools prepared not only in the basal physical geography, but in higher regional geography, and certain specialized phases of human geography, the future high school teacher will be able to give his pupils geography of immediate value, and basal from the standpoint of the normal and elementary school needs.

When high school graduates enter our normal schools with a good training in regional geography because they have studied in college under teachers properly trained as to what geography for the everyday man and woman should be, our normal schools will be able properly to prepare teachers in elementary schools. High school and normal school teachers of geography are largely college products. The few score of college graduates who go out into our normal and high schools as teachers of geography, are responsible directly or indirectly for the teaching of the eighteen or more millions of school pupils in geography. The improvement of geography teaching is therefore fundamentally dependent on the character of the geography work in our colleges.

College teachers of geography cannot rightfully think only of the training of the future expert in geography. That is the task of the post-graduate school. The college teacher of geography needs to present organized courses in geography that will be a source of inspiration and growth to his pupils, no matter what their future life is to be. The future normal and high school teachers, trained in matter and method, in courses in physical and human geography, will go to their life tasks keen to help in the improvement of geography. They will in turn train pupils to teach this better geography in the elementary schools. Thus the leaven will work downwards and upwards and improvement will follow all along the line.

Our colleges are responding to this opportunity slowly but surely. In many institutions today geography is receiving forceful attention from a broad and scientific viewpoint. The

work of these institutions has already made a deep impress on the normal and secondary school work in several favored localities and though there is a great need for improvement as the conditions brought out herein indicate, there is much to bring satisfaction as the progress of the last decade is viewed in both secondary and normal school geography teaching.

## TENDENCIES IN SECONDARY SCHOOL GEOGRAPHY

During the last few years there has been a decided change in public attitude toward geography for secondary schools. The over-emphasis of formal physical geography as such, and its evident unsuitableness as a first or second year subject, together with the increasing importance of commercial and regional geography, have caused a widespread demand for a more humanized geography in secondary schools. Many educational leaders and teachers of geography have felt that formal physical geography, taught either as an informational subject or as a science, was unsatisfactory in that it was impersonal and of less worth as a contribution to the life equipment of most children than some other phase of geography might be. Recognizing the importance of teaching certain parts of physical geography as a basis for later work in geography and related subjects, the demand simultaneously arose in many centers for a modification of secondary school geography.

Many thought that a new demand was placed on the secondary school, so far as geography was concerned, by the decreasing attention given to this subject in the elementary schools, especially in the later grades. Two points of view have animated those who have demanded a new geography in secondary schools. Many believe that geography has a rich and valuable content, that is worth having, not only for itself, but for its use and application in other subjects of the secondary curriculum. Others think of geography as being valuable only for the knowledge of location it gives, and have demanded more geography as they might demand more spelling or common fractions. Many college and normal school teachers have found entering pupils woefully ignorant of the facts and principles of elementary geography, and have endeavored to stimulate secondary geography artificially by making a knowledge of certain facts an essential for admission. A teacher from one of our best known normal schools reports as follows:

"Last fall I gave my class a test on locating states on an outline map. The results were, pupils tested, 74; number of correct papers, 4; average number of mistakes per paper, 18.2." This normal school requires its pupils to pass the following test with an average of 95 per cent before entering the senior class.

UNITED STATES

Locate:
States of the Union.
Lakes:
The Great Lakes, Great Salt Lake.
Rivers:
Potomac, Hudson, Delaware, Mississippi, Missouri, Platte, Arkansas, Red River of the North, Ohio, Tennessee, Colorado, Columbia, Niagara, St. Lawrence, Connecticut, Erie Canal, Sault Ste. Marie Canal.
Mountains:
Mt. Whitney, Mt. Shasta, Mt. Mitchell, Mt. Washington, Appalachian Mts., Adirondacks, White Mts., Catskills, Rocky Mts., Cascades, Sierra Nevada, Coast Range.
Cities:
New York, Chicago, Philadelphia, St. Louis, Boston, Baltimore, Washington, Pittsburg, Cleveland, Buffalo, Rochester, San Francisco, Cincinnati, New Orleans, Detroit, Milwaukee, Newark, Jersey City, Hoboken, Trenton, Louisville, Minneapolis, St. Paul, Providence, Kansas City, Mo., Denver, Duluth, Seattle, Portland, Ore., Los Angeles, Galveston, Mobile, Omaha, Salt Lake City.
Scenic Regions:
Yellowstone National Park, Grand Canyon of Colorado.
Bordering Waters:
Massachusetts Bay, Long Island Sound, New York Bay, Delaware Bay, Chesapeake Bay, Mobile Bay, San Francisco Bay, Puget Sound.
Outlying Territories:
Alaska:—Mt. McKinley.
Yukon River.
Cities of Nome, Sitka, Juneau.
Philippines:—Islands of Luzon and Mindanao.
Manila.
Hawaiian Islands:—Honolulu.
Canal Zone:—Cities of Colon and Panama.
Coaling Stations:—Guam, Wake Island, Samoan Islands.

NORTH AMERICA OUTSIDE THE UNITED STATES

Locate:
Bordering Waters:
Hudson Bay, Gulf of Mexico, Gulf of California, Caribbean Sea, Behring Sea, Panama Canal.

CANADA

Locate:
Provinces:
Quebec, Ontario, Manitoba, British Columbia, Alberta, Saskatchewan.
Rivers:
Mackenzie, Nelson, Fraser, Saskatchewan, Ottawa.
Cities:
Montreal, Quebec, Winnipeg, Vancouver, Prince Rupert, Ottawa.

MEXICO

Locate:
Cities:
Vera Cruz, City of Mexico.

CENTRAL AMERICA

Locate:
Names of Countries.

EUROPE

Locate:
Names of Countries.
Rivers:
Mersey, Thames, Clyde, Rhine, Rhone, Seine, Danube, Po, Arno, Tiber, Volga, Elbe.
Mountains:
Alps, Pyrenees, Caucasus, Carpathian, Mt. Blanc.
Cities:
London, Liverpool, Manchester, Birmingham, Glasgow, Edinburgh, Dublin, Belfast, Berlin, Hamburg, Cologne, Dresden, Munich, Paris, Le Havre, Lyons, Marseilles, Brussels, Geneva, Antwerp, Bordeaux, Amsterdam, Rotterdam, The Hague, Copenhagen, Christiania, Stockholm, St. Petersburg, Moscow, Odessa, Vienna, Budapest, Constantinople, Athens, Rome, Florence, Venice, Naples, Genoa, Madrid, Lisbon, Oporto, Salonika.
Bordering Waters:
North Sea, Irish Sea, English Channel, Baltic, White Sea, Bay of Biscay, Mediterranean, Black Sea, Caspian Sea, Adriatic Sea, Aegean Sea, Strait of Bosphorus, Strait of Gibraltar.

ASIA

Locate:
Countries:
Japan, China, Chinese Republic, Mongolia, Manchuria, Tibet, Korea, India, Persia, Arabia, Turkey in Asia, Siberia.
Mountains:
Himalayas.
Rivers:
Hoang Ho, Yang-tse, Ganges, Brahmaputra, Indus, Tigris, Euphrates.
Bordering Waters:
Red Sea, Arabian Sea, Suez Canal, Indian Ocean, Bay of Bengal, China Sea.
Cities:
Tokio, Yokohama, Pekin, Shanghai, Canton, Calcutta, Bombay, Delhi, Jerusalem, Mecca, Singapore.

AFRICA

Locate:
Countries:
Morocco, Algeria, Tunis, Tripoli, Egypt, Congo State, Union of South Africa.
Rivers:
Nile, Congo, Zambezi.
Cities:
Algiers, Alexandria, Cairo, Cape Town, Port Said, Johannesburg, Kimberley.
Cape of Good Hope.
Sahara Desert.

SOUTH AMERICA

Locate:
Countries:
Brazil, Argentina, Chili, Peru, Colombia, Venezuela.
Mountains:
Andes.
Rivers:
Orinoco, Amazon, La Plata.
Cities:
Buenos Aires, Rio de Janeiro, Valparaiso.
Cape Horn.

AUSTRALIA

Locate:
Victoria, New South Wales, Queensland, Western Australia, Melbourne, Sydney.

ISLANDS

Locate:
New Zealand, East Indies, West Indies, Cuba, Jamaica, Porto Rico, Bermudas, Newfoundland, Trinidad.

Obviously the weakness of pupils' knowledge of geography on graduation from secondary schools cannot all be laid to poor or inadequate teaching of geography in the elementary schools, for at least five and six years elapse between the closing of school geography in the seventh or sixth grade and high school graduation. Such lack of knowledge of essential everyday facts cannot be any greater for pupils entering the higher educational institutions than it is for pupils who leave the secondary school for business life. High school geography needs, therefore, to include some training in regional geography not of the type usually found in grade schools, but something richer, better and more scientific than any work that can be done in the grades. This is the opportunity that many have recognized and worked for, and it is work of this new type that is coming into many secondary schools in varied forms. The movement has progressed rapidly in certain sections and the modern changes that have been incorporated in our texts and courses of study have been largely based on two committee reports which are essentially as true now as when written.

At the annual meeting of the Association of American Geographers in 1908, an evening was devoted to the discussion of secondary school geography, in which discussion practically all the leaders in geographical education took part. Though there was some lack of unanimity of opinion in reference to certain

minor points, there was very general agreement in reference to the larger propositions of the following syllabus which served as a basis of discussion.

SYLLABUS

1. Present Character of Secondary School Geography: Largely physical geography, with or without laboratory work; some commercial geography causally taught; some commercial geography taught in an informational way.
2. Modern Physical Geography.
   a. Generally includes Earth in Space, Atmosphere, Lands, Oceans, and some treatment of isolated life responses or of larger life conditions.
   b. In better secondary and normal schools includes much laboratory work on Earth in Space, Lands and Atmosphere. Much of this is forced in character and a good deal of it is not geographic in nature.
   c. Two Groups of Courses.
      (1) Systematic, following outline like College Entrance Examination Board Requirements and most texts.
      (2) Informational, including a large number of facts and principles unrelated to systematic development of the subject.
      (3) Advantages of the Present Course.
         (a) Systematic and capable of being taught to large classes in a more or less mechanical way.
         (b) Can be made definite and laboratory tasks can readily be assigned.
         (c) Supply of well trained teachers, good texts and laboratory guides constantly increasing.
         (d) Gives excellent training in scientific study of problems large in scope and requiring different form of study from most problems taught through experiment or observation with or without microscope.
         (e) Readily prepares for college entrance in a subject that can now be studied in a more advanced way in many colleges and normal schools.
         (f) College and secondary school work closely united.
         (g) Has aroused interest in study of local physical geography.
      (4) Disadvantages.
         (a) Over-systematic and often unreal to pupils. Deals with subject as if all students were preparing to be geographers or to enter colleges giving advanced work in systematic study of land forms.
         (b) Does not meet real need of most pupils. Pupils entering college are criticised for lack of knowledge of geography of the world. Those not going to college generally get no study of any areas of the world after 7th year in grammar school.
         (c) Point of view in study of lands incapable of being personally applied to pupils over large areas.
         (d) Too advanced and too detailed for most pupils. Detailed classification of land forms requires knowledge of structural geology, and the ability to interpret solids for which pupils are not prepared.
         (e) Laboratory problems deal with the representations of things and not with things. Form of representation even of contours, hard for inexperienced person readily to follow.
         (f) Similar courses in Normal Schools do not give students preparation to teach in elementary schools.

(g) Physical features not located are studied as puzzles or tasks. Work does not arouse interest. Pupils may recite glibly but have no usable knowledge of the subject.

(5) Needs of the Pupils in Secondary Schools in Reference to Geography.
- (a) Course that will best prepare for after-life within or out of college.
- (b) Phase of geography most used will be regional geography in some form.
- (c) Work should not only be informational but personally useful, and yet systematically presented so as to give training in scientific study of the subject.
- (d) Regional geography necessary as a basis for work in history, in ancient or modern literature, in economics, in commerce, in fact, in any topic dealing with distribution of phenomena.
- (e) If regional geography be not studied in secondary schools it will never be secured except by those few pupils who go on to those colleges where regional work is being given.
- (f) Work should be geographically sound, scientifically presented, but not necessarily as it would be to a group of pupils who were preparing for advanced scientific geography work.
- (g) Present popular interest is in commercial geography because of its practical value.

(6) Content of most valuable High School Work.
- (a) Should deal most largely with regions—say, United States and Western Europe.
- (b) Regional study of High School should be more advanced and more scientific than any work possible in elementary schools.
- (c) Work should begin with study of those phases of physical geography which are necessary as a basis for systematic, causal, regional geography. Physical geography is not, therefore, an end in itself, but a means to an end.
- (d) Work should find its application and use in scientific causal study of political and commercial geography, in geography of life, in a large way.
- (e) Such a course would be a compound of selected phases of present physical geography and of principles of commercial geography, with special study of selected regions as wholes. Course should not be a collection of scraps, but a united, well knit whole.
- (f) Should be so taught that any pupils can study any other region alone in similar scientific way.
- (g) Advantages gained from laboratory study of present physical geography should not in any way be sacrificed. Laboratory work should be large factor in course, to include study of earth in space, elements of map reading, larger features of climate, larger land forms, as plains, plateaus, volcanoes, sea shores, mountains, etc., ocean currents and waves as related to harbors and trade routes; general maps showing distribution of population, nationalities, products, industries, etc.

(h) Laboratory work should include study of special maps such as those in Dierck's or Sydow Wagner's Schulatlas, as much as, or more than, weather maps and United States Geological Survey topographical maps. Should include training in atlas work, in reference work and in field work.

(i) Such a course would best, perhaps, be divided into parts.

(j) (*1*) Physical geography in which only those phases of the subject should be included which later will be needed, and those studied so as to suggest their application, and

(*2*) Regional geography in which given regions are studied systematically from larger topics of position, climate, surface, etc., to a climax, in economic and social phases.

(k) Such a course can be as "disciplinary" as present work; is more needed as a preparation for life in school or out; is more personal and will meet the approval of superintendents and parents because more practical.

(7) Possibility of such a course.

(a) Inquiry has shown general dissatisfaction with present work among geographers, geography teachers, superintendents, principals, and teachers.

(b) Time is ripe for a change.

(c) Such a change can be more readily accomplished today than was the change to present physical geography because—

(*1*) Some colleges and some normal schools are already giving such courses and are preparing teachers for such work. Supply of teachers will be assured.

(*2*) Value of laboratory and field study has been proved and teachers will not go back to merely informational cram work as of old.

(*3*) Supply of general and special maps and atlases is good and constantly increasing.

(*4*) Chief lack is proper text-books more advanced than elementary school texts, less inclusive than the encyclopedia reference books like Mill's International and Chisholm's Handbook. This need will undoubtedly promptly be met by publishers as soon as change is seen to be imminent.

8. General Conclusion.

Such a combined course, or one on similar lines, would retain all the advantages gained from the modern study of physical geography, would avoid many of the difficulties, would be more generally adapted to pupils' needs, would be equally adapted to college requirements from the standpoint of training secured, would give a better foundation for work in college of general study in related fields, would allow for causal study of commercial conditions and relations, would appeal to the public, and can at once be undertaken by trained teachers.

In 1908 a committee was appointed by the National Education Association and one by the Association of American Geographers to consider and report upon the subject of Secon-

dary School Geography. The first Committee reported in 1908 the following recommendations:

1. Geography, touching as it does the daily life of every individual at so many points, should be, in some form, a required subject in all secondary schools.
2. The subject should be pursued for not less than one year.
3. The subject should be presented in the first year of the High School.
4. There should be at least five recitations a week.
5. About one-fourth of the total time should be devoted to laboratory and field work. This should, by no means, be confined to the study of physical geography. Much laboratory work and some excursions should be undertaken in connection with the commercial phases of the subject, and there should be carefully planned exercises based upon maps and models.

We recommend that about one half year be devoted to the larger topics of physical geography, with the human side made more prominent than at present, and that the remainder of the year be given to a study of North America and Europe. Such a course would give our students some considerable knowledge of the geography of the most important countries of the world, and incidentally much useful information as applied to other areas, would be required.

The chief difficulties that stand in the way of putting such a course into operation are two: first, time honored custom; and second, the lack of text-books that meet the requirements.

We believe that careful consideration of the subject from all points of view will remove the first, while the publishers will provide us with the necessary texts almost as soon as we declare ourselves ready for them. In the meantime, the first part of the course can be carried on by means of selected portions of our physical and commercial geographies, numerous government publications and periodical literature.

The Second Committee reported as follows:

Opinions from widely scattered regions show the necessity of an evolution, but not a revolution, in our secondary school geography. Your committee is a unit in its conviction that the present " disciplinary " quality of the work must be maintained and that the satisfactory results from rational laboratory work must in no way be lessened or any change of emphasis be given to different phases of the subject. Several members of the committee fear that the possibility of a greater emphasis of human geography is a distant one because of the probable lack of trained teachers. On the other hand, it should be noted that work of the kind necessary for future high school teachers is

now being given in many of the normal schools which, outside the east, frequently prepare pupils for secondary as well as elementary work, and that the leading universities are now giving regional as well as physical geography courses to large and constantly increasing classes. The teachers prepared for the new work are greater in number than were the prepared teachers for the new type of physical geography fifteen years ago. To-day not one-half, perhaps not one-fourth, of the teachers now conducting classes in physical geography have had any special training, and their preparation for one type of work is as good as that for another. They are victims of text-books and courses of study.

Your committee is also a unit in believing that physical geography should not be displaced but modified and that an understanding of the essentials of physical geography is necessary as a preparation for any regional study, whether that study be a general study of typical areas and "responses," or whether it be a study of selected regions from a causal standpoint—that is, after the order of treatment followed by the better teachers in the upper grades of the elementary schools, but much more deeply and scientifically.

Your committee further hopes that it may be possible in the near future to have a second year of geography work following a course in humanized physical geography—which second year should be acceptable for college entrance at the same time that it is of practical, immediate value to the pupils in their school work, and as a preparation for after-school life, which will come to most pupils not later than the end of the second year in the high school. This hope is, however, an ideal which may be long deferred. The demand of the hour is for the best course in geography—not necessarily physical geography—for pupils in the first or second year in the high school.

It is a practical problem that we must meet, and your committee, therefore, recommends that we suggest a course of study that shall outline the essentials in physical geography and be followed by a course in either.

a. Commercial or industrial geography, or

b. Regional geography of the United States and Western Europe, or

c. A study of selected physical regions of the world, with an emphasis of the life relation.

Your committee recommends that the course to follow the preliminary course in physical geography be regional study of the United States and Western Europe, culminating in the commercial status of these regions in the world's history. The treatment of these regions should be by physical and climatic divisions, a form of treatment which is well outlined in the

chapters devoted to the British Isles in Herbertson's Senior Geography.

Although your committee believes such a course to be the most practical and valuable, it does not feel that its recommendations in this regard should be so definite as to preclude human geography of the other types listed above for those schools or teachers who are prepared to do the other kinds better and more advantageously. Our recommendation is that this work should be based on the elements of physical geography, and that the principles of physical geography should be constantly applied in the interpretation and study of the selected regions or phases of human geography.

To summarize: The problem before us is, given one year of time available for geography in the first or second year of the high school,

1. What is the best content of such a course from the standpoint of the present and future needs of pupils ?
2. How large a part of this time should be physical geography ?
3. What is the point of view from which the essentials should be selected, and what is the object for which these essentials are to be taught ?

## The Relation of Geography to the Other Secondary School Sciences

The problem that confronts us in working out the best course in secondary school geography along the lines of the recommendations quoted, involves many elements. The decrease in attention given to the earth sciences, as indicated by the table below, puts a greater burden upon geography, the most favored and general of this group of sciences.

Number of Students in Certain Courses in Public and Private High School

(From the Report of the Commissioner of Education, 1911)

| | 1895 | | 1900 | | 1905 | | 1910 | |
|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % |
| *Public High Schools* | | | | | | | | |
| Astronomy .. | 16,670 | 4.79 | 14,235 | 2.78 | 8,307 | 1.22 | 3,915 | .53 |
| Geology..... | 17,488 | 5.00 | 18,743 | 3.61 | 15,914 | 2.34 | 8,538 | 1.16 |
| Physical Geography. | 83,642 | 23.89 | 121,335 | 23.37 | 146,275 | 21.52 | 142,948 | 19.34 |
| *Private High Schools* | | | | | | | | |
| Astronomy .. | 7,920 | 6.69 | 7,160 | 6.46 | 5,200 | 4.85 | 3,301 | 4.20 |
| Geology..... | 8,378 | 7.08 | 6,557 | 5.91 | 4,682 | 4.36 | 2,713 | 3.46 |
| Physical Geography. | 21,482 | 18.15 | 22,800 | 20.57 | 19,356 | 18.05 | 13,552 | 17.26 |

The character of the work to be given must depend in large measure upon the year in which geography is to be offered. In many localities, as is indicated by the following table from the Report for 1912, Education Department, State of New York, geography is primarily a second year subject.

DISTRIBUTION OF SCIENCES IN THE ONE, TWO, THREE AND FOUR YEAR HIGH SCHOOLS IN NEW YORK STATE

| | *1st year* | *2nd year* | *3rd year* | *4th year* |
|---|---|---|---|---|
| Botany | 162 | 0 | 29 | 35 |
| Zoology | 88 | 0 | 28 | 33 |
| Biology | 485 | 3 | 0 | 0 |
| Physiology | 24 | 8 | 16 | 141 |
| Physics | 0 | 6 | 569 | 107 |
| Chemistry | 0 | 23 | 86 | 247 |
| Physical Geography | 1 | 197 | 39 | 42 |
| Commercial Geography | 18 | 0 | 43 | 39 |

Or to summarize, the biological sciences in New York State come largely in the first year, geography in the second year, physics in the third year, and chemistry in the fourth year. This means that the physical geography offering consists of a general course in the second year in the larger number of schools offering the subject, and a special course for college entrance in the later years following the lines of the modern texts and laboratory manuals.

The tendency to make geography a second year subject in secondary schools has been recently increased by the fact that "General Science" is being adopted for the first year science work.

A recent study of the offering in geography in the secondary schools of forty of the leading cities of the country gives the following distribution according to years of the course.

| Year | Physical Geography | Commercial and Industrial Geography | Geology |
|---|---|---|---|
| 1 | 20 | 8 | 0 |
| 2 | 13 | 18 | 1 |
| 3 | 2 | 7 | 0 |
| 4 | 8 | 11 | 8 |

The Committee of the National Education Association on the Articulation of School and College work has considered, as a preliminary step to more complete formulation of details, the question of the relation of sciences in high schools—especially high schools not principally for training pupils for college en-

trance examinations. They have placed general science in the first year, followed by geography in the second year. The general practice of the country seems to be in accord with this thought.

So far as geography is concerned, then our problem is to outline a course for the second or first years of a four-year high school curriculum; for in the relatively small number of schools where geography is included in the later years of the course, it is highly specialized and standardized.

A course of study for the earlier years, it is generally agreed, should be humanized in its viewpoint, and practical in its applications. If the ultimate aim of the course is to be the study of regional or commercial geography, the course should be organized as a unit for the year, where possible. Available texts and aids make it more generally practicable to emphasize the elements of physical geography in the first part of the course.

The first and most difficult step in reforming secondary school geography is to organize a basal half-year course in the elements of physical geography, largely to be taught through maps and books, which will lay a good foundation for later regional or commercial geography.

Any such half-year course must, of necessity, be unsatisfactory to the enthusiast for physical geography, because in such a course physical geography must be taught as a means to an end and not as an end in itself. Certain portions, interesting and necessary from one point of view, must be sacrificed for the sake of the quality and unity of the whole. Further, in actual teaching, some of the application of the physical facts in the interpretation of human affairs should be brought out in the study of the facts themselves, so as to show the practical and personal value of the material. The elements of physical geography taught with no reference to the life responses are dry and often meaningless except in the hands of a teacher enthusiast. Physical geography taught from the opposite point of view is one of the most fascinating of secondary school sciences. The modern teachers of physics and biology have recognized the value of making their favorite subjects "practical" for many years, and have profited from attempting this newer kind of high school science. The teacher of physical geography is just beginning to outline work of a similar type.

## A HALF-YEAR COURSE IN THE ELEMENTS OF PHYSICAL GEOGRAPHY AND ITS APPLICATIONS

The following course of study is presented here as a contribution to the cause. Seemingly stripped to the shrouds, as it were, the course is a unit in itself, but it is a workable unit. Many sections of the ordinary course are here omitted with the thought that they will be introduced more effectively in the later regional or commercial work.

### The Elements of Physical Geography with some Applications in Life

The Earth as a whole.
- The relations in space of the earth, moon and sun. Full moon, new moon.
- Shape and size.
- " People have sailed around the earth."
  - Proof: Circular shadow, measurement of arc.
- Significance in human occupations and daily life.
  - Size: Slowness of development of earth knowledge.
    Commercial intercourse today.
  - Shape: Gravity.
    Uniform weights and measures.
    Bills of lading and cargoes.
    Energy vs. work in all parts of the world densely populated.
    Up, down, level.

Earth motions.
- Rotation and inclination of axis.
  - Alternation of daylight and darkness, except about poles at certain seasons.
  - Direction east and west; North Star; deflection of winds.
  - Physiological response of plants and animals.
  - Pole, equator.

Measurement of time.
Longitude, degrees of longitude, international date line.
Revolution.
Variation in length of day and night.
Variation of seasons, significance in agricultural and other occupations.
Tropics and circles; zones of sunlight.
Latitude, degrees of.
Maps and their use.
Meridians and parallels, scales and projections, township and section lines.

The Atmosphere.
Composition, weight, height.
Offices of the atmosphere.
Relation of oxygen, nitrogen, and carbon dioxide to plants and animals.
The elements of weather and climate.
Seasonal and annual conditions of temperature over land and sea, and over North America.
Frosts, length of the growing season.
Winds, their cause, relation of winds to temperature, seasonal winds in the United States. The great wind systems and the chief modifications. Sea breezes. Mountain and valley winds.
Humidity, relative. Relation to winds and temperature, causes for variation, significance in daily life, humidity and plants and animals.

Rainfall.
Relations to humidity, causes, relation to winds, to larger surface features, distribution of arid, semi-arid and humid regions.
Importance of seasonal distribution of rainfall including snowfall, as related to industries. Illustrations from several sections of the United States.

Storms.
Temperate latitude cyclones and anticyclones. Character and general paths. Seasonal weather in home region, relation

to industries, especially agriculture, and transportation. Cold and hot waves. Weather forecasting.

Climate.

Climate of the tropics and trade wind belts as related to plant and animal life, industries and civilization.

Climate of the temperate regions in review with particular emphasis of the growing season.

Broad distribution of countries according to climate.

The Lands.

The land as home of man. Dependence of man on soils and water supply.

Soils.

Importance of soils. Soil making briefly.

Physical and chemical conditions of soils as related to plants.

Maintaining tilth and fertility.

Character of local soils as related to crops and distribution of population.

Reasons for variation of soil character.

Relation of soil use to climate and ground water.

Broad distribution of soils in United States.

Water Supply.

Ground water, evaporation and rainfall.

Importance of ground water. Seasonal variation in height of water-table. Relation to slopes. Relation to plants, rivers and water supply.

Artesian water, irrigation, dry farming (briefly).

Rivers and River Valleys.

Work of running water briefly.

Types of river valleys—young, mature, old, drowned.

Lakes and waterfalls and their significance.

Valleys as routes of travel and centers of occupation and industry.

Relation of cities to the following points in river valleys—mouth, head of tide, head of navigation, head of lake, foot of lake, falls, junction of tributaries, bluffs, gaps, portages.

Rivers as boundaries.
Special study of the larger features of the Mississippi Valley, the Hudson Valley, and the Sacramento—San Joaquin Valley, as related to industries, commerce, distribution, of population, etc., bringing out the relations to climate and surface features.

The Larger Land Forms.
Plains, character, slopes, significance in present and past.
Alluvial—small, local, large. semi-continental. Relation to delta and bluffs. Favorable and unfavorable conditions.
Coastal—origin, relation to shore features, surface and soils.
Wide and well drained; narrow, indented.
Significance of inner margin. Fall line in United States.
Interior plains.
Size and significance. Effects of climatic situation on occupations and development.
*Note.*—Defer lake, lava, and glacial plains to later regional work.
Plateaus.
Surface and climate features. River valleys.
Occupations and life conditions.
Mountains.
Mountains, ranges, systems, peaks and passes.
Significance of height, direction, and extent.
Relation to climate, rainfall, and rivers.
Mountains in relation to plants, to transportation, to industries.
Mountains and plains.

The Ocean.
The extent and continuity of the ocean.
Ocean as a highway and source of food supply. Relation to climate of bordering lands.
Fog areas, fishing grounds, cable paths, coaling stations.
Harbors.
Essentials of a good harbor. Types of harbors with examples.
The distribution of harbors in the United States as related to regular and irregular shores, estuaries, fiords, lagoons.

Accessibility of harbors as related to waves and tides.
Waves, their form and size, motion and relation to wind.
Tides, occurrence, interval, relation to moon and sun.
The work of the tides, tidal currents, high and low water, ebb tide, flood tide.
Ocean currents.
General scheme of the ocean currents.
Relation to winds.
Monsoon currents in Indian Ocean.
Influence of currents on atmospheric temperatures and moisture.
Special currents of significance.
Great ocean routes as related to winds, currents and plains.

The Distribution of Plants.
Larger world areas including temperate forest and grass lands, tropical forests and savannas, steppes, and deserts.
The distribution of population and occupations over the world as related to the larger plant regions.
United States plant regions, as evergreen forests, mixed forests, grazing and dairying areas, mixed farming areas, cotton, cereal and subtropical fruit areas.

## REGIONAL GEOGRAPHY IN SECONDARY SCHOOLS

The type of geography of most value for the usual secondary school varies with the locality, with the character of the school and in accord with the future life needs of the pupils. It is doubtful if a course in commercial geography devoted primarily to the distribution of industries and products and to their exchange is adapted to the needs of many schools. Such courses are likely to be far too informational in type and not to give the outlook on the world relations and economic opportunities that are a better basis for future growth. A study of economic and commercial conditions over the world and of our own country from a regional standpoint has more value both from the standpoint of immediate and ultimate use. But even this fails in part unless the economic and social relationships of the various parts of our country are brought out and the pupil sees, not each area separately, but in its setting as related to the larger country of which it is a contributing and dependent part.

Regional geography is a larger and more significant subject than commercial and industrial geography. Regional geography ought to be a causal study of unit areas, including the physical features and the life conditions found therein.

The distribution of people and industries in any region is directly or indirectly in accordance with four large factors: plant regions, climate, physical features and soil. The interrelations of these factors are so complicated that it is difficult to combine them so as to draw a composite map of natural regions on a scale suitable for detailed work. The larger factors are vegetation and climate, which together form a setting against which to study physical divisions. The composite vegetation and climatic regions are sometimes considered as natural regions (Herbertson) or provinces (Dryer). Hence before entering upon the detailed consideration of either of the several unit areas that may be used as a starting point in the study of the regional

geography of the United States, it is desirable to summarize briefly the general physical conditions of the country in accord with the following suggestions. Such a summary will be a means of reviewing the generalizations of the earlier part of the work and give a setting for the later work.

*Climatic Regions of the United States.*

Cool Temperate.

East Coastal—seasonal distribution of rainfall, from coast westward; varying length of the growing season; seasonal temperatures; relation to occupations, to natural vegetation and to the distribution of population.

West Coastal—distribution of rainfall; seasonal variation of temperatures; relation to natural vegetation and occupations.

Interior Highlands and Valleys—seasonal rainfall and temperature; relation to natural vegetation and occupations.

Warm Temperate.

East Coastal—summer and winter temperatures and rainfall; relation to natural vegetation and crops.

West Coastal—seasonal rainfall and temperatures; relation to natural vegetation and crops. Modifications of climate due to influence of mountains.

*The Physical Regions of the United States.*

The extent, broad physical characteristics, relative location, and general relation to vegetation and climatic areas of the following physical divisions of the United States: New England; Atlantic and Gulf Coastal Plain and Piedmont Belt; Appalachian Region (including Appalachian Mountains, Great Valley and Ridges, and Plateau); Prairies; Great Plains; Rocky Mountains; Columbia Plateau; Colorado Plateau; Basin Ranges, Pacific Ranges and Valley.

*The Soil Provinces of the United States*, as related to physical divisions and climate, according to Plate II, Bulletin **6**, Bureau of Soils, U. S. Department of Agriculture.

*The Economic Vegetation Regions of the United States* as related to natural vegetation, physical regions, climate and soil as follows: lumbering areas (evergreen forests, mixed forests) grazing and dairying areas; mixed farming areas; cotton, sugar and rice area; cereal area; sub-tropical fruit areas.

The life conditions include the distribution and character of the people, their work, their relations to other communities, their facilities for economic and commercial progress, something of the relation between the geography and history seen therein and the probable future conditions. Regional geography should not merely be facts; it should involve more the study of relationships local and remote. It should not be wholly from a text but largely from maps and through the presentation of problems that the pupil will systematically endeavor to work out.

For instance, the study of New England would naturally center around the study of two problems: the reason for the development of manufacturing in New England and its consequences socially and economically; and second, the commercial relations of New England to the other parts of the country as areas of supply of food or raw materials and as markets for the products of New England. Incidental to such a study should be brought in the change in the character of the New England industries and the distribution of population with the growth of cities. Through such a series of problems and sub-problems it is easily possible to study the essential geographical conditions of any area. Principles used in the earlier work can be applied, tested and used, and good training can be given in the methods of analysis involved in most geographic study.

To stop with such a series of analyses would be to give the impression that geography is valuable only in the study of existing conditions. The tendencies of the times in New England, because of the conditions of location, of physical and economic conditions, should be touched upon as well. What is to be the future of this area is equally interesting. The modern movement from extensive to intensive agriculture, the development of dairying and truck farming and similar movements, now in their infancy, are signs of the times that suggest problems to be left in the pupils' minds as worth attention in the future. The ability to

interpret new conditions as they arise is the most valuable result that can come from the study of modern geography and should be constantly kept in mind.

The following outline presents a method of approaching the regional study of the United States through a study of the economic and social conditions. These are the phases of geography that are the most interesting and generally valuable.

### The Larger Problems of New England

1. The Reasons for the Development of Manufacturing in New England.
2. The Commercial Relations of New England.

#### Method of study of problem 1

What are the conditions necessary for successful manufacturing? (Bring out the significance of raw materials, power, labor, markets, foods.)

What were the occupations in the early history of New England? The significance of agriculture, lumbering, and fishing, with reasons.

What conditions were favorable and unfavorable for agriculture? (Bring out the character of the surface and climate, the soil and the crops of the early days.)

How were people distributed in the early days? Small towns and villages.

What were the needs of the people in reference to food and clothing?

How were these needs supplied? Development of home industries.

What were the raw materials of these industries? Where and how secured?

Influence of long winters on manufacturing when labor was freed from farm work.

What was the chief source of power?

Why did the rivers and lakes aid the development of small factories?

What was the effect of steam on transportation of raw materials and fuel?

The effect as seen in the development of large factories and the concentration of population in large cities.

How were the needs of raw materials met? Cotton, wool, leather, lumber, etc.

What are the needs of a large manufacturing community as to the essentials of life?

How are these needs met?

What foods can be brought from a distance? What must be secured largely from near at hand?

Why have dairying and truck farming developed in recent years?

What areas are still devoted to special crops? Why?

Why has paper making developed as an important manufacturing industry?

What are the leading cities of New England? Where are they located?

Are the largest cities only known for their manufacturing?

What other forms of business are important in many cities? Why?

METHOD OF STUDY OF PROBLEM 2

Where must a manufacturing community sell its products?

What favorable conditions for commerce has New England?

What are the chief ports of New England for foreign commerce?

What manufacturing cities naturally center on Boston? On New York?

Why is southern New England well situated for domestic water commerce?

What disadvantages do the northern coast cities have for water commerce?

What are the chief materials brought into New England by water? Coal, cotton, leather, wool. Where from?

What products naturally come by land? From where? Iron, food, manufactures from inland sections.

With what sections of our country do we naturally have the greatest land commerce? Why? Relative advantages of New York and Boston from this standpoint.

The products of New England needed in the rest of the country.

Is New England as independent an area as it once was?

It is very easy, however, in work of this kind, to overlook some of the permanent essentials unless such a plan is checked up by a systematic organization of the larger geographical factors that should be brought out through such an analytical study. This organization should be in the mind of the teacher and should guide her in bringing out the underlying conditions that help to explain the present conditions. It may be presented to the pupil as a final summary of the work, if thought desirable, but should not be presented at the opening of the work unless the teacher is able to combat the combined influence of the plan and the text, both of which may be followed without the provoking of thought.

The following outline presents the most significant facts of New England geography, adapted to pupils of early secondary schools. A comparison of this with the plan suggested for study will show that the content of each is closely similar. The advantage of the plan for study is that it is centered about life problems and permits the approach to be made through the study of problems. The problems are points of departure and are brought in for illustrative purposes. The purpose of the "check list" is to give a reference base that will prevent too much wandering afield and too great emphasis of details.

### The Larger Elements in New England Geography

Area, relative size.

Significance of location in relation to ocean, Canada and rest of country.

Climate.

- Effect of east coastal position, as seen in relation to storm paths and character of storms, seasonal temperatures and rainfall, length of growing season.
- Effect of climate on character of occupations, on distribution of crops, on lumbering, on water supply for manufacturing.

Surface.

- Elevated upland, mountain groups, and coastal and valley lowlands.
- Effect of depth and character of river valleys on transportation, distribution of population and industries.
- Mountains as scenic regions.

Glaciation (including a brief study of glaciation in general).
Effect on surface, drainage and soils.
Upland and valley soils as related to population and industries, past and present.

Drainage.
Significance of streams in early history. Carrying places. Canoeing.
Falls and lakes as related to summer resorts, power, water supply, local climate, winter occupations.
Swamps, their use and extent.

Shore Line.
Character of shore line. Estuaries and fiords.
Relation to transportation, commerce, fishing and summer resorts.
Decline in use of small harbors for commerce. Effects on cities.
Oysters, scallops, shore and deep sea fishing as related to shore.
Wooden ship building and whale fishing.

Soils.
General character of the glacial soils.
Relation to extensive and intensive agriculture.

Occupations.
Agriculture.
Influence of soils, climate, surface, and markets on the character of agriculture. Highlands and lowlands contrasted.
Special crops and their distribution.
Reasons for change from cereals to fruit, vegetables and dairy products.

Lumbering.
Distribution as related to climate, surface and forests. Character of present lumbering. Paper pulp. Reason for decrease in significance of lumbering in New England. Relation to ship-building and wooden ware.

Quarrying.
Distribution of granite, marble, slate and sandstone quarries.
Relation of granite industry to water transportation.
Significance of marble and slate quarrying.
Changing requirements for building materials. Importance of road materials.

Manufacturing.

Reasons for development of manufacturing. Sources of power and raw materials.

Change from home to factory industries. Influence of heredity on labor supply.

Significance of water power and reasons therefor. Localization of cotton manufacturing.

The significance of leather goods, wooden ware, woolens, silver and brass and reasons therefor.

The available markets and the dependence of New England on the rest of the country for food and raw materials.

The effect of manufacturing on agriculture and distribution of population.

Fishing.

The reasons for the growth and significance of fishing.

Character of fishing and its localization.

The early fishing and the relation to the ship-building industry.

Summary.

The distribution of population; the relative significance of agriculture, manufacturing, lumbering and fishing as compared with the past.

The New Englander in the development of the West.

The general distribution and the localization of industries in New England.

The commercial relations of New England, New York and neighboring states.

The probable agricultural and manufacturing future.

### The Atlantic and Gulf Plain

1. The Reasons for the Prominence of Agriculture in the Region.

2. The Present Distribution of Commerce on the Atlantic and Gulf Coasts.

#### method of problem 1

What are the staple crops of this area? How do they compare with the crops raised in Colonial days? What is the leading crop of the section? Why is it so important?

What conditions have favored the development of agriculture? What is the character of the soils? Where are they the richest? How have the surface features favored and hindered the development of agriculture?

Will agriculture prosper where soils and surface features are favorable? What other conditions must be supplied? What is the length and character of the growing season here? How long a season is required for cotton, for sugar, and rice? How are these three crops distributed in the Southern States?

What other crops must be raised to meet local needs? What crops can be sold in a local market? What crops must be sent long distances?

What conditions favor truck farming and fruit raising? Where can these products be sold? At what seasons? Why?

Why is manufacturing increasing in this section? How do the agricultural conditions favor the development of manufacturing? Where are the chief manufacturing sections? What cities are railroad centers? Why?

Why has manufacturing been longer established in the Northern States than in the Southern States?

Why was the National Capital located in this section? Why were the southern colonies so prominent politically in the early days of the country's history?

METHOD OF PROBLEM 2

What are the leading ports of the United States? What ports are most prominent for their imports? For their exports?

How many of the leading ports are located in this area? What condition must a port have for commerce? Bring out ease of access by sea and by land, protection of harbor from winds and waves, necessity of good landing facilities, deep and straight channel, good anchorage ground.

Where are the best harbors? Why are the commercial cities at the fall-line so favorably situated? What advantages and disadvantages have Galveston and New Orleans as ports? Why are these ports so important in foreign commerce? With

what countries do they carry on their trade? Why are the ports of the southern Atlantic Coast more engaged in domestic commerce? Why? How would their exports vary with the season?

What are the chief imports of the southern states? Of the northern states? With what portions of the country do the southern and northern states carry on commerce by land? What products from the interior do the northern states need but which the southern states do not need? Why?

How many large cities in this section are not engaged in ocean commerce? What are their industries? Why do the railroads run in general in a northeast-southwest direction?

Summary.

Why was the early commerce of this section not concentrated in large cities as it is now? What will be the effect of the opening of the Panama Canal upon the commerce and industries of the southern states?

### The Larger Geographic Conditions Summarized

The extent of the Atlantic and Gulf Plain. General comparison of the Coastal Plain and the Piedmont Belt.

Climate.

The significance of position in reference to storms and seasonal weather. The varying length of the growing season. The distribution of rainfall areally and by seasons.

The effect of climate on the distribution of crops, on occupations, on the character of the labor employed and on the needs of the people for food and shelter.

Surface and Soils.

The larger surface features and the soil distribution in the two sections. The lowlands bordering the coast, the alluvial plains.

The relation of the section to the bordering mountains. Effect of the mountains on the occupation of the section and on ease of communication with the central portion of the continent.

Drainage.

The length and character of the streams. The navigability of the streams in the north and the south. The significance of the fall-line and the growth of the fall-line cities. The absence of lakes. The use of the streams for manufacturing and the modern development of electricity. The significance of the Mississippi River and Valley. Brief account of the floods, the forests and soil conditions and of the river as a commerce route.

Shore Line.

Comparison of the northern and southern shore line. The distribution of harbors as related to shore line. The relation of ports to river valleys giving access to the interior of the country. The estuaries in relation to fishing and commerce. The relative advantage of deep and shallow bays as harbors. The shore line of Texas and the harbor of Galveston.

Occupations:

Agriculture.

Influence of soils, climate, surface features and markets on the character of the crops in various sections. Special study of the tobacco, truck farming, fruit, cotton, rice and sugar sections with reasons for their distribution. Comparison of the crops of the Coastal Plain with those of the Piedmont Belt. The influence of the large cities of the North on the distribution of crops in this region.

Lumbering and Mineral Products.

The distribution of forests. The reasons for their exploitation.

The character of the forest products. The ports of shipment.

The local use of the lumber and other forest products.

The distribution and importance of the phosphates, sands and clays.

The relation of the mineral products to agriculture and manufacturing.

Manufacturing.

The sources of power available.

The raw materials and available labor supply.

The distribution and character of manufacturing.

Conditions favoring the development of the industry.

The leading cities and the reasons for their significance.

Commercial Relations.

The several ports and their trade. The distribution of the foreign and domestic commerce. The West Indian trade.

The significance of the Mississippi River as a trade route.

Summary.

The present character of the industries as compared with those of the earlier days.

The significance of the region historically.

The relation of the Atlantic Plain section to the Appalachians.

The probable future development of manufacturing, and commerce.

### The Appalachian Region

1. What Great Industries Depend on the Products of the Region?

2. Explain the Location of the Railroads in the Appalachian Region.

#### method of problem 1

What are the natural products of the Appalachian Mountains? Of the Great Valley? Of the Alleghany and Cumberland Plateaus?

Where are the conditions for agriculture most favorable? What are the crops of the Great Valley? Of the Plateau? How have the agricultural opportunities of the Great Valley influenced the development and settlement of the region?

Of what value are the forests of the section? Why is it considered desirable to protect and develop the forests? How will the forests of this section aid the industries of the Atlantic Plain? What industries have been developed within the region because of the forests? Where are these industries located, and why?

What sections of this region contain the richest coal and iron? Which is the most valuable, and why? What industries depend to the largest extent on the use of coal? Where are these industries located? How is the coal carried to them?

What industries in this section depend on the local use of the coal? What large cities in this section are noted for their

manufactures? Where are they found? Is any other source of power than coal available in the region? Is it being developed? How?

How is our foreign commerce related to the coal supplies of this section? Why has the coal of the southern section not been developed to the extent that it has been in the north? Is there any reason to believe that the coal and the iron of the southern section will some day be developed to a greater extent? Why? In what particular areas?

What portions of this section are as yet thinly populated? Why? Where would one expect the population to increase most rapidly? Why?

METHOD OF PROBLEM 2

Explain the general directions and the numbers of the railroads in the several sections of the Appalachian Region. Where do most of the railroads cross the mountains? What river valleys do they follow? What large cities are at the eastern and western ends of these roads? Where do the railroads reach their highest altitudes?

What products are carried by the railroads of New York, Pennsylvania and Maryland? Why is the railroad from West Virginia to Norfolk, Va., an important freight route? Why are there only a few railroads crossing the Southern Appalachian Mountains? Why has the Cumberland Plateau fewer railroads and cities than the Alleghany Plateau?

Why are the railroads connecting Pittsburg with Lake Erie important to the industrial towns of Western Pennsylvania? What products are carried to the Lake Ports and carried to Pennsylvania from the Lake Ports?

Are all the products of this section carried to markets on railroads? What other means of transportation are available? Why were the river routes important in the early development of the country? What river routes were most used for trade and exploration? Why is the city of Chattanooga better served by the railroads than by the Tennessee River?

Why are there railroads into mountain areas that furnish very few products for trade? What cities of the Great Valley

are the best situated for trade? Why are the railroads following the lowland from Albany to Buffalo more favorably located than any other roads that connect the eastern ports with the west? Why may the Hudson River be said to be the Gateway to the Continent? Why is the Erie Canal still much used for trade when so many railroads exist in the same section?

Summary.

What advantage would there be in a canal for ocean-going vessels from Lake Erie to the Hudson River?

What have been the large effects of the Appalachian Barrier in the history of our country?

What industries would be affected by an Appalachian Forest Reserve?

### The Geographic Conditions Summarized

Location.

The location and subdivisions of the Appalachian Region.

The relations between these subdivisions.

The significance of the Appalachian Region as a barrier.

Climate.

Comparative climatic characteristics of the several portions.

Climatic variation from south to north and with altitude.

Effect on distribution of forests and resorts.

Surface.

The general characters of the several divisions.

The extent and relative heights of the Appalachian Mountains.

The location of passes and their early and present significance.

The surface and soil characteristics of the Great Valley in its several parts. The reasons for soil fertility and richness. The effect on early industry and population.

The extent, height and character of the Plateau. Its soils, forests and the relations to population, railroads and occupations.

Agriculture.

The distribution and character of agriculture in the several parts of the Great Valley. Reasons for the early occupation of the Great Valley. Pennsylvania and East Tennessee.

The relation to markets.
The occupations of the mountains and plateau.
Reasons for isolation of the peoples of the Plateau.

Lumbering and Mining.
The distribution and character of the forests. The relation to manufacturing in the Great Valley.
The mineral products. Their distribution and value. The relation of minerals to other occupations. Significance of the anthracite coal area. The bituminous district.
Reasons for the development of coal in the Appalachian Plateau and the lack of development in the Cumberland Plateau.
The relation of mining areas to routes of transportation and to seaports.

Manufacturing.
The distribution and character of manufacturing. The chief cities and their products. Relation to other sections of the country for raw materials. Proximity to markets and effect upon character of manufactures.
The geographic location of the larger cities and the reasons for their development.

Summary.
The location of the several states in reference to the sections of the Appalachian area.
The significance of state boundary lines.
The influence of industries on the distribution of population.
The effects of the Appalachian Mountains and the Great Valley on the Civil War.
The future of the forests.
Historical relations to the northern Great Valley.
The relation of New York, Philadelphia and Norfolk to the productive areas of the Appalachian Region.

## The Prairie States

1. Why are Agriculture and Manufacturing Constantly Increasing in the Prairie States ?
2. Why are the Great Lakes a Great Route of Commerce ?

METHOD OF PROBLEM 1

What are the chief forms of agriculture in the Prairie States? Where are the leading corn, spring wheat, winter wheat and fruit areas? What features of climate, surface and soil influence the distribution of these crops?

Why can machinery be used extensively in agriculture in this section? Compare with the conditions in the eastern states. Why are dairying and beef cattle feeding prominent in sections of this group of states? Why are swine and horses raised in great numbers?

Which of the more important cereals are largely consumed on the farms? Why? What manufacturing depends directly on the products of the farms for raw products? How does the development of manufacturing and large cities affect the character of the agriculture?

What other sources of raw materials have these states? What industries are dependent on coal? iron? lumber? Why is the manufacturing of agricultural implements and wagons important in these states?

Where are steel making, slaughtering, and furniture making most developed? Why? What other special forms of manufacturing are found in these states?

What large cities are especially prominent for their manufacturing? What other facilities beside raw materials and power must a section have in order to develop manufacturing?

Where are the largest cities found? Why? Are they primarily devoted to manufacturing?

METHOD OF PROBLEM 2

Why is the trade between the Prairie States and the eastern states so extensive? What products are sent in foreign commerce? What are consumed in this country? How?

What products can be more cheaply sent by water than by land? Why are the Great Lakes more important in trade than the Mississippi? Has this always been true? Give reasons for answer.

What ports of the Great Lakes are near to sources of raw products that enter into trade? What kinds of products are

sent out from Duluth, Ashland, Chicago, Milwaukee, Detroit and Cleveland? What are the imports of these cities?

What forms of manufacturing near the lower lake ports depend on imports from the upper Great Lakes? Why are Duluth and Chicago the leading upper lake ports? Why is Buffalo well located for manufacturing and commerce?

Why have not the Canadian cities on the Great Lakes grown as fast as the cities of the United States? What disadvantages have the Great Lakes as a commercial route? What would be the advantage of a canal from Chicago to Toledo?

Why are the products passing through the "Soo" Canal greater in quantity than those of any other canal?

Summary.

As the United States increases in population what will be the effect on the foreign exports of the Prairie States?

Why are steel mills being opened on the upper Great Lakes?

Why are the forests of this region of less significance than formerly?

Why did the cities on the Great Lakes at first grow more slowly than those along the Ohio River?

### THE GEOGRAPHIC CONDITIONS SUMMARIZED

The extent of the Prairies. Relation to the Great Plains. Reasons for differences of occupation in the large.

Climate.

The average temperature and rainfall conditions. The seasonal distribution of rainfall and temperature. The length of the growing season. Comparison with the Atlantic Coast States.

The relation of climate to the general distribution of natural vegetation.

Surface.

The extent of plains in the Prairies. The influence of glaciation on surface and soils. The character of the rivers and valleys.

Interruptions to the plain character of the surface. Missouri and Arkansas.

The effect of surface on the distribution of crops, on transportation lines, on the distribution of cities.

The effects of climate and surface on the general distribution of the more important cereals.

Agriculture.

The physical and economic conditions favoring the development of agriculture.

The relative importance of the cereal crops. Special crops and their distribution. Relation of fruit areas to the Great Lakes.

The industries dependent on agriculture. Grazing, character and extent. Reasons for the importance of animal products.

Mineral resources.

The distribution and relative importance of coal, oil, gas and other rock products. Effects on distribution and character of manufacturing.

Special consideration of the iron and copper districts and the reasons for their importance. Relation to transportation routes and to the industrial cities of the eastern states.

Manufacturing.

The character and distribution of manufacturing. The larger manufacturing cities. Their location and the significance of location.

The relative importance of the section in manufacturing.

Commerce.

The surplus products and the natural markets therefor.

The direction and character of the trade.

Relation of commerce to railroads, to the Great Lakes and to the rivers of the Mississippi Valley.

Summary.

The reasons for the rapid development of the section in agriculture.

The relation to the center of population, of manufacturing and of agriculture.

The relative advantages of location of the several great cities.

The reasons for the recent development of the more northern states.

The relative significance of the Mississippi River and the Great Lakes in the present and in the early history.

The early development of canals and the reasons for them. The present significance of the canals.

The relation of the Prairie States to the Canadian Provinces north of the Lakes and the reasons for their comparative significance today.

The effect of the iron deposits on the commerce and the distribution of industries in the section.

## The Great Plains

1. Why is agriculture rapidly increasing in importance on the Great Plains?

2. How have the Rocky Mountains influenced the development of the Plains States?

### METHOD OF PROBLEM 1

What conditions favor grazing in this section? What are unfavorable for agriculture? How does distance from large centers of population affect the character of the crops?

On what special conditions does the distribution of agriculture in the Plains States largely depend? Where is irrigation most possible? What crops can be grown by means of irrigation? Why does the Government aid in the development of irrigation?

What are the principles of dry farming? What crops can best be grown by dry farming? How does the area that can be irrigated compare with the area that can be devoted to dry farming? What type of agriculture will probably prevail over the larger portion of the Great Plains?

What portions of the Great Plains are most favorable for the continuation of grazing? How does the character of the grazing in these states compare with that in the Prairie States?

Why are there but few large cities in the Great Plains States? Where are the chief cities located? Why do so many small towns in the eastern Great Plains contain flour mills? What are the favorable and unfavorable conditions from the standpoint of transportation?

### METHOD OF PROBLEM 2

In what ways do the Rocky Mountains affect the climate of the Great Plains? How are the deficiencies of rainfall in the Great

Plains counteracted? What is the source of the water secured for irrigation? How are the artesian water resources of the Plains related to the mountains?

What led people first to cross the Great Plains? What was their goal? For what portions of the Rocky Mountains did they take their course? How have the passes of the Rocky Mountains influenced the present courses of the railroads of the Great Plains?

What resources within the Rocky Mountains led to their development? What was the influence of this development on the growth of the cities of the Plains? What Plains cities have most profited from their position in reference to the valleys of the Rocky Mountains? In what ways?

What advantages for trade and business has a city near to the foot of the Mountains as compared with one farther east in the Plains? Explain the paths of three of the larger railroads across the Plains? Why are there no important north-south lines in the Plains area?

Summary.

Why were the Great Plains a barrier to western development in the early days?

How has the increase of agriculture in the Great Plains affected the supply of beef in the country as a whole?

Why is beef raising not profitable in sections where grain can be grown by dry farming?

### THE GEOGRAPHIC CONDITIONS SUMMARIZED

The extent and boundaries of the Great Plains. The significance of climate and altitude on the character of the region and the distribution of vegetation.

Climate.

The general features of annual and seasonal climatic conditions.

The reasons for sub-aridity. The changing boundary of the sub-arid and the humid areas.

The causes of sub-aridity. The influence of the barrier of the Cordilleras.

The effects of climate on exploration and settlement. The early significance of grazing.

Surface.

The general character of the surface. The relation of rivers to surface.

The relation of surface to distribution of industries.

The relation of drainage to surface and to the Rocky Mountains.

The relation of surface to artesian water conditions and to the possibilities of irrigation.

Special areas of the Great Plains. Black Hills, Texas.

Industries.

Distribution of grazing and agriculture.

Methods of farming and crops produced. Irrigation and dry farming.

Relation of industries to transportation and to markets.

Distribution of the more significant cities. Reasons therefor.

Summary.

Areas of the Great Plains that have the least favorable conditions.

The changing character of the industries.

Relation of the Great Plains cities to the Rocky Mountain area.

The future industries of the Great Plains.

Their relative importance industrially.

## The Rocky Mountains

How is the Present Distribution of Population and Industries in the Rocky Mountain States to be Explained ?

### Method of problem

What first attracted people to make settlements in the Rocky Mountain States ? Where were these settlements made ? Why ? Have these early towns retained their relative importance ? What minerals are now most valuable in this section ? Why ? Why is copper so important in modern times ?

Why has Colorado such an intricate network of railroads and New Mexico so few ? What advantages for agriculture have certain of the inter-montane valleys ? What disadvantages ? Where is grazing most important ? Why ?

In what ways is the National Government assisting in the development of the Rocky Mountain area? Why? Of what advantage are Forest Reservations?

What sections of the Rocky Mountains are the most interesting for their scenic attractions? Why? How do these areas affect the seasonal distribution of people?

Why were the valleys of New Mexico more favorable than those of Wyoming to the development of primitive people? What determined the route of the first railroad across the Rocky Mountains? What advantages of location have the railroads crossing New Mexico, Colorado, Montana?

Summary.

What relation exists between the present railroads and the early trails?

Why were the Rocky Mountains less of a barrier to western exploration and settlement than were the Great Plains?

What minerals of this region are likely to be of the greatest significance in the future?

What is the effect of irrigation on the distribution of industries and of population?

Why are the water power rights of great value in the western mountains?

THE GEOGRAPHIC CONDITIONS SUMMARIZED

The relation of the Rocky Mountains to the rest of the Cordilleran region.

Larger results of position of the Rocky Mountains.

The subdivisions of the Rocky Mountains.

Surface.

The general distribution of ranges, valleys and passes.

The effect on distribution of forests, industries and routes of transportation.

Special scenic areas of the Rocky Mountains and reasons for their significance.

The significance of the Rocky Mountain Front.

Climate.

The character of the seasonal climate as a result of position, altitude and direction.

The interior valleys from the same viewpoint.

The distribution of the rainfall.
Relation of rainfall to drainage, to use of rivers for irrigation and power.

Resources.
The distribution of forests, minerals, grazing lands as related to surface and climate.
The effects of the distribution of resources on occupation and transportation lines.

Industries.
The significant industrial areas. Their products, relation of mining centers to Great Plains cities.
The surplus products and the needs of the area. Relation to transportation problems and to other sections of the country.

Summary.
The historical significance of the Rocky Mountain Area.
The relation of passes to routes of travel and trade.
The development of water resources.
The value and significance of Forest Reservations.
The relation of the Rocky Mountains to the Great Basin cities.
The effect of the Rocky Mountains on the climate of the Great Plains and on the character of the region.

## The Interior Provinces:

## The Colorado and Columbia Plateaus and the Basin Range Area

Why Does this Area of Average Sparse Population Contain Several Regions of Large Industrial Significance ?

### METHOD OF PROBLEM

What industries are found in this area ? How are they distributed ? Why ? Where are the conditions most favorable for agriculture ? For grazing ? What forms of agriculture are found in this section ? What is the reason for the difference between the agriculture of the northern and the southern portions ?

What other industries are found in this area ? What advantages has Utah for agriculture and manufacturing ? Why is Nevada less thickly populated than Utah ? What advantages of position has Spokane ?

Why is the Colorado River a hindrance to the development of the country ? Why is the Colorado River so well known ? Why have the forests about it not given rise to large lumbering industries ?

What difficulties do railroads meet in crossing this section ? How do they solve them ? Why do so many railroads center on Salt Lake City and Ogden ?

What conditions favor the growth of fruits and vegetables in this section ? Why are these raised when large markets are so distant ?

Summary.

How has the Great American Desert been conquered ?

What limits the possibilities of the development of agriculture through irrigation in this section ?

What has been the effect of the building of railroads on the development of the area ?

Under what conditions do industries follow the railroads, and railroads follow the industries ?

### THE GEOGRAPHICAL CONDITIONS SUMMARIZED

The situation of the several sections. The reason for their distribution into separate provinces.

The larger results of their location.

Climate.

The effect of position on climate. Variation north and south.

The reason for general aridity.

Seasonal and diurnal temperature conditions.

The effects of altitude on rainfall and temperature as indicated by the natural vegetation.

The results of aridity as seen in the general character of occupations and in natural resources.

Surface.

The character of the surface of each subdivision. Relation of the surface to drainage. The Great Basin as related to the Basin Range area.

The soils and surface features of the Columbia Plateau.
The effect on occupation and character of industries.
The character of the surface features of the Basin Range area. The mountains, plains and interior drainage. The relation of soils to surface.
The Colorado Plateaus, their extent, height, character, and drainage. Reasons for the character of the Colorado Valley.
Effects of the surface features on transportation and trade.
Industries.
The character of agriculture and its distribution. Irrigation. Centers of irrigation. Variation in products. Dry farming.
Grazing and its character. Mineral wealth. Effects on the distribution of population. Relation to railroads.
The larger cities in reference to local industries, agriculture and mining. Other significant factors influencing their development.
Summary.
The distribution of irrigation projects and the relation to agriculture.
Dry farming and its relation to grazing.
Special crop areas as fruit, sugar beets, sub-tropical products.
The larger scenic features.
The development of manufacturing as related to crops and other products.

### The Pacific Ranges and Valley

1. What determines the distribution of Industries and Population in this section ?
2. What are the Commercial Relations of this Group of States ?

#### method of problem 1

What resources first attracted people to this section in large numbers ? Where did they settle ? How did they reach the country ? What difficulties did they encounter ?
Why did agriculture develop rapidly ? In what sections was it first the most successful ? Why ? How do the crops vary

with the latitude? Why? Why is the citrus fruit industry prominent in southern California? What conditions favor the dry fruit industry in California? The apple industry in Washington and Oregon?

Why has lumbering developed rapidly in recent years in Washington and Oregon? Where is grazing most successful? Why? Where is the growing of vegetables important?

What industries depend largely on agriculture and lumbering? Where are they found? Why? Why has manufacturing not as yet been developed to the extent that it has been in the Eastern states?

Of what industrial value are the rivers and the sounds? How do they compare in importance with the estuaries of the Atlantic Coast?

Where are the larger cities? What has determined their location?

METHOD OF PROBLEM 2

Where are the best markets for the products of the Pacific states? What products of this group of states enter most into domestic commerce? Into foreign commerce? Why are the products for the eastern states carried by land? How do the products for domestic trade in the northern states differ from those in the southern states?

What necessaries of life must as yet be largely imported? What products are imported for reshipment by rail? Where from? With what possessions of the United States do the Pacific states have important trade?

What ports are best situated for the Alaskan trade? For trade with the eastern coast of Asia, the Philippines, Hawaii?

Summary.

What will be the effect of the opening of the Panama Canal on the trade of the Pacific Coast?

Will it increase the trade between the Pacific and the Atlantic Coasts?

What products needed in the Pacific states will be more accessible when the interior of Alaska is developed?

THE GEOGRAPHICAL CONDITIONS SUMMARIZED

Location in reference to climate, ocean and vegetation regions. Larger results following from location.

Climate.

- The climatic subdivisions of the region and the reasons therefor.
- Variations in rainfall and temperature with latitude and altitude.
- Range of temperature. Diurnal variations.
- The larger crop areas in reference to climate.
- Comparison of climatic conditions with those of rest of country.
- Influence of winter conditions on industry and distribution of population. Comparison with conditions on the Atlantic Coast.
- Seasonal conditions of Southern California and about Puget Sound.
- Relation of winter climate to harbors and river use.

Surface.

- The distribution and relations of the larger surface features.
- The distribution of forests as related to climate and surface.
- The significance of the California and Washington-Oregon valleys.
- The ranges of Northern California and their significance.
- The relation of the shore line to surface.
- The distribution of harbors, as related to surface and drainage.
- The significance of the rivers. Their relations to the mountains. Scenic features of rivers and mountains.

Industries.

- The character of the agriculture in the several regions.
- Relation of crops to surface, soil and climate. The significance of climate in the dried fruit and wheat regions. The areas of vegetables. The citrus and apple areas as related to climate.
- The grazing regions and their distribution as related to climate and surface.
- The mining industries including oil, gold, silver and other metals.
- The early significance of mining. Relation to later industries.

The development of manufacturing. Where found. Why? Larger centers and the reasons for their location.

The fisheries and lumber industries as related to surface and drainage.

Commerce.

The markets for this section. How reached. Relative value of land and water commerce. Distribution of products according to the form of transportation.

The foreign commerce of the Pacific Coast. What has caused its development. Commerce with Hawaii and Alaska.

The significance of the position of the larger ports.

The necessary imports of the section. Relation of imports to manufacturing.

The future outlook for commerce of this coast.

Summary.

What will be the probable influence of the Panama Canal?

Why have Oriental races settled in this section? What occupations do they follow?

What conditions have favored the development of Southern California?

Compare the trade relations of Washington and Oregon and of California with the eastern states.

### SUMMARY OF THE UNITED STATES

What is the relative rank of the United States in commerce, in manufactures, and in industrial development?

With what countries do we have the largest trade? Why?

What natural advantages has the United States as a producing and as a commercial nation?

What are the largest ports of the country? Where are they located? How do they compare in exports? In imports? Why?

What are the larger crop regions of the United States? What does each contribute to foreign commerce? To domestic commerce?

Why is our domestic commerce constantly increasing?

How has immigration affected the development of our country? In what regions do we find large numbers of Scandinavians, Germans, British? Why?

Will manufacturing increase in regions now devoted to other occupations? Why? Where may manufacturing be expected to increase with the greatest rapidity? Why?

Compare the industrial condition of our country, of Germany and of England, and explain any significant differences.

## ECONOMIC GEOGRAPHY OF THE UNITED STATES

Outline of a course given in the Horace Mann High School with details as to the method of approach of certain selected problems.

### Conditions of Economic Development

Character of people.
Density of population.
  Capital and labor.
  Immigration.
Service of Government.
  Protection of life and property.
    Lighthouses.
    Life saving stations.
    Weather bulletins.
    Sailing charts, etc.
  Necessity for taxation.
Expedients to facilitate trade.
  Common standards of weights and measures.
  Medium of exchange.
  International Date Line.
  Time belts.
Surface.
  Lowlands.
    Plains, valleys.
      Atlantic, Coastal, Mississippi, etc.
      Relation to agriculture, manufacturing, commerce.
      The chief railroads of the country.
        Routes followed. Advantages of low grades. Comparison of the leading railroads.
        Leading gate cities of the interior.
  Highlands. Appalachians, Cordilleran.
    Relation to occupation, especially lumbering and mining.
    Barriers to transportation.
    Importance of passes and gaps.

Coast line.
  Types, North Atlantic, Texas, California.
  Life relations.
    Location of towns, occupations, especially fishing and commerce.
    Influence on the development of a region.
Ocean.
  A highway of travel.
  Factors influencing routes.
    Winds, tides, currents, icebergs, fogs, etc.
    Ship canals, their importance in determining routes.
      Panama Canal.
Climate.
  Temperature and rainfall.
    Influence upon economic development.
      Regions incapable of development.
      Regions capable of development in summer only.
      Well developed regions.
      Products contributed by regions of extreme cold, extreme heat, by deserts, by regions of excessive rainfall.
Natural resources.
  Minerals.
    Coal.
      Formation.
      Classification and distribution.
      Available supply.
      Consumption and waste.
      Conservation, needs and methods.
    Petroleum.
    Natural Gas.
    Iron.
    Copper, etc.
  Water.
    See detailed outline for method of organization.
  Forests.
    Original forest area of United States.
    Extent and value. Compare with other nations.
    Present area of forests.

Consumption.
Waste in consumption by logging, milling, fire, pests, etc.
Conservation, methods and needs.
Soil.
Origin, mechanical and chemical processes.
Composition.
Classes.
Rate of formation.
Destruction.
Soil erosion; factors controlling.
Loss of mineral matter; causes.
Conservation.
Value of a fertile soil.
Methods of preventing deterioration.
Reclamation; how accomplished.

THE UNITED STATES IN THE MARKETS OF THE WORLD

Staple products.
Cotton.
Area producing.
Physical conditions favorable.
Markets.
Rank among countries.
Sugar.
Corn.
Wheat.
Wool and live stock.
Forest products.
Mineral products.
Manufactured products.

SELECTED PROBLEMS TREATED IN DETAIL

I. NATURAL RESOURCES

Water.
Source of water.
Distribution of rainfall in United States.
Western Coast.
Western Interior.
Eastern United States. } Causes of varying amounts.

Underground water.
  Use underground.
  Emergence in various forms.
Surface water. Chief uses.
  Navigation.
    Great Lakes.
      Importance among inland water ways.
      Chief trunk lines.
      Commodities carried.
      Tonnage of the Sault Ste. Marie.
    Rivers.
      Distribution of navigable rivers of United States.
      Relation to manufacturing, commerce, etc.
        The Atlantic Fall line.
      Importance in determining the location of cities.
      Mississippi System.
        Number of miles of navigable waters.
        Past and present commercial importance.
          Reasons for decline.
    Comparison of river and Great Lakes transportation.
    Comparison of railway and water transportation.
    Needed improvement of rivers.
      Recommendations of Inland Waterways Commission.
Water power.
  Cities determined in their location by the presence of water power.
    Related industries carried on in each.
  Past and present importance of water power in New England.
  Uses of water power today.
  Future importance.
    Its aid in the problem of the conservation of coal, particularly emphasized.
  Amount of water power available in United States.
City water supply.
  Various uses to which water is put by a city.
  Sources.
    Rain water stored in tanks.
    Springs and wells. Artesian water.

Lakes and streams.
Supply for home city studied.
Importance of purity. How contaminated.
Irrigation.
Arid region of United States.
Location.
Population compared with humid section.
Importance of irrrigation.
Government projects.
States in which projects have been developed.
Detailed study of some leading projects.
Salt River Project.
Roosevelt Dam.
Location.
Height.
Reservoir.
Size.
Distribution of water.
Results of project.
Area and land that may be reclaimed through irrigation.
Conservation of water.
Reasons for value of irrigated lands.

## II. COTTON

By means of charts and maps locate the leading cotton plantings in the United States. Verify your chart and maps by the text.

Conditions of cultivation regarding surface, rich moisture-holding soil, drainage. Use of fertilizer.

Climatic conditions necessary—even but not excessive temperature—rainfall necessary—long growing season—sunshine—very sensitive to *frost*—no strong winds during maturing season. Sum up these conditions.

Locate regions of great cotton areas elsewhere. Compare surface conditions (soils especially) of India, Egypt, Japan, China and Brazil with those of our cotton regions. Compare *climate* conditions. What is your conclusion regarding comparative production? Test your conclusion by use of world production of cotton chart.

Discuss the planting and cultivation of cotton in our southern states—amount of hand labor required in Colonial time for picking—effect of invention of cotton picker upon amount of labor necessary. (If climate of our North Central states had been satisfactory for raising cotton what would have been the effect upon *slavery?*) Discuss old way of removing fibre from seeds—effect upon labor and increased production of Eli Whitney's invention of the cotton gin. Location of gin houses. Compare sea-island cotton fibre with fibre of Japanese cotton, with upland cotton fibre—difference in use and value of each. Effect of this difference upon commerce.

Discuss baling of cotton for transportation. Transportation:
When possible by boat. Why?
Points of concentration of the crop. Why?
Ports from which cotton is shipped.
Sections of United States that import cotton from the South. Discuss the chart in Robinson, p. 144, as to this.

By-products—study charts.

Reasons why New England manufactures so much cotton cloth. Leading manufacturing states and cities there. Difference in labor in factories. Moisture for process needed.

Reasons why the southern states are exporting relatively less cotton. Great cotton mill cities in the South and reasons for this industry there. Compare the labor used on the plantations with labor used in factories. What has been done about child labor in the cotton mills? Safety and health protection?

Leading manufacturing states and cities in the South. Difference in quality of cloth made in North and South. Why?

Transportation of cloth:

1. To stores, where sold to consumers for home use.
2. To factories, where "ready-made" garments are manufactured and sold.

Raw cotton sold to *other* countries—Robinson 402. Large ports receiving our cotton. Great advantages of cotton manufacturing in England. Of what value is the Manchester ship canal to this industry?

Other countries extensively engaged in manufacture of cotton cloth.

Problems:

Locate other regions where cotton may be raised to commercial advantage. Why are Great Britain, France, Germany interested and intent upon finding these places and raising cotton? What effects have development of water power, skilled labor, local markets upon shifting and increasing cotton manufacturing to the South?

Material—maps, graphs, pictures, exhibit of cotton—by-products—manufactured products.

Handle other fibre plants in a like manner only less extensively.

### III. PANAMA CANAL

Search for routes to India.
- Portuguese—via Africa.
- Columbus—westward.
  - His various voyages and their results.
- Balboa.
  - Journey from Atlantic to Pacific.

Roads across Isthmus.
- Balboa's Road
- Panama Road
- Tehauntepec Road

} Briefly described.

- Railroad
  - Immediate causes for its construction.
  - Builders.
  - Cost of project in labor, lives and money.

Canals.
- Projected by Spaniards.
  - Approximate date.
  - Route.
- Projected by Scotch.
  - Date.
  - Route.
- Projected by English.
  - Date.
  - Route.
- Projected and commenced by French.
  - Date.
  - Route.

De Lessep and the Suez Canal.
De Lessep and the Panama Canal.
Undertaking described.
Causes of failure.
Projected by People of United States.
Date.
Route.
Canal zone—how control was secured.
Work.
Establishment of sanitary conditions.
Construction of canal.
Length, depth, width.
Sea level and lock types compared.
Chief difficulties in construction.
Gatun Dam.
Culebra Cut.
Cost.
Influence upon trade.
Important routes that will be changed.
Time saved through shortening of routes.
Relative trade advantages of leading commercial nations as a result of the opening of the canal.
Trade advantages of the leading ports of United States.
Toll rate.
On merchant vessels.
Coastwise vessels.

### Laboratory Work

1. Fill in an outline map of the canal locating the chief features necessary to an understanding of the problem, i.e., the Atlantic and Pacific oceans, Panama, Colon, Chagres River, Culebra Cut, Gatun Lake, Gatun Dam, the locks, the canal route, the Panama Railroad.

2. Construct a profile of the canal from Colon to Panama, using the following dimensions and the following scales:

Sea level entrance channel through Limon Bay to Gatun, 7 miles in length. At Gatun a lift of 85 feet by means of three locks, each giving a lift of approximately 28 feet, to Gatun Lake.

A 32-mile stretch at this level through Gatun Lake and Culebra Cut to Pedro Miguel Lock. At Pedro Miguel Lock a drop of 31 feet to Miraflores Lake, which is 2 miles in length and 54 feet above the sea. From Miraflores Lake a drop of 54 feet to sea level by means of two locks, lowering the level 23 and 31 feet respectively. An eight-mile stretch at sea level to the Pacific.

Horizontal Scale, $\frac{1}{4}$ in. = 1 mile.

Vertical Scale $\frac{1}{2}$ in. = 28 feet.

3. On an outline map sketch the chief routes from the leading ports of China, Japan, India and Australasia to New York.

On a second map show which of these routes will, in your opinion, change after the opening of the canal.

Compare with an authoritative map.

Indicate distance covered by each route.

4. On an outline map show the present routes from New York to the western South American ports.

On the same map show what change will result from the opening of the canal.

Show, as above, the saving in distance. From a study of tables of distances, compare the relative advantages of New York and Liverpool in trade with India, China, Japan and Australasia, after the opening of the canal. Also the present and future advantages of New York and Liverpool with reference to the western South American trade.

In the same way study the influence of the opening of the canal on the trade of New York and New Orleans.

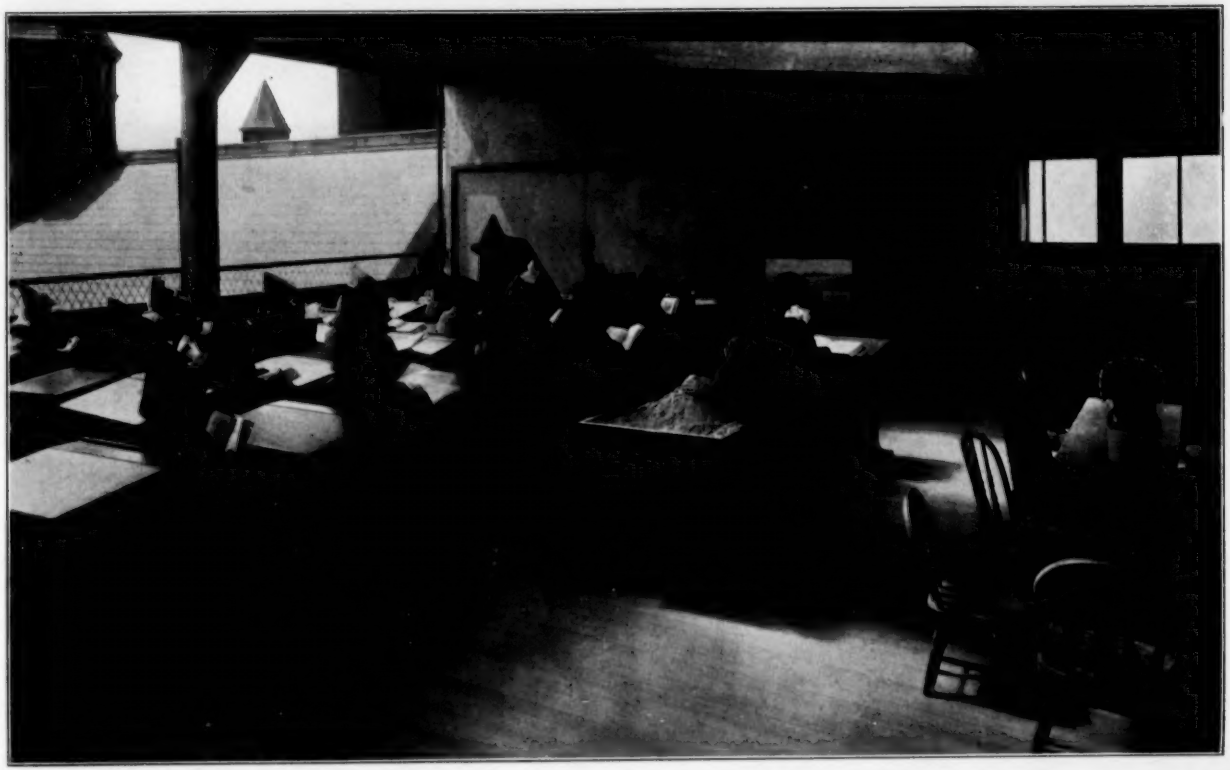

FIG. 1.—Open-Air Class—Second and Third Grades—Horace Mann School

The open side of the room (at the left of the picture) faces south

# OPEN-AIR SCHOOLS

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Published by

Teachers College, Columbia University

NEW YORK CITY

1914

## PREFACE

Little has been written on open-air schools during the past few years. By consulting the rather full bibliography in Chapter IX, which has been compiled to date, it will be found that most of the contributions on this subject appeared not later than 1910, which in a large measure are summed up in Ayres' "Open-Air Schools." All these earlier books and articles devoted themselves mainly to questions of equipment, the problem of keeping children warm out-of-doors, or to a few statistics relative to the physical and mental gain found in open-air classes. The articles of the last three years have dealt with details along these same lines.

From the beginning of the experiment instruction in open-air schools has been conducted in general as in indoor schools, the main difference being in the arrangement of the program of study. The first few years showed remarkable results due in part, no doubt, to the enthusiasm, optimism, and energy which accompany any new movement, especially one so radical as the open-air school. During the past two years there has been a period of trying out and of seeking a normal pace with, as already suggested, few new contributions.

The purpose of the present article is not to review the beginning years, so adequately treated in the book by Ayres, but rather to supplement this early fund of information by personal observation and study of the outdoor school movement as it is working out at present, and particularly to suggest ways of applying the measuring rod to the open-air school in order that we may know much more definitely than we do now how valuable this new work is and how it compares with that usually found indoors. Such a study seems called for as the author finds that the present tendencies are to conduct a slightly modified indoor school in the open air. A movement of such promise and importance to anemic, weak, and even normal children deserves more attention of a scientific kind than it has already

had. We must bring this outdoor movement into proper perspective to learn better how great a contribution to educational progress it has been. We must discover also how better to adapt our methods of instruction to outdoor needs and, if we discover anything of value, to ask if its good is limited to outdoor conditions or if it may also be helpful in improving the indoor school. The open-air school with its new environment and novelty offers special inducements for scientific experiment of this kind and should prove an inviting field for applying the methods of the educational psychologist. Only by such means will we know much more about this new kind of school than we did during the first few years of its existence.

The historical survey in Chapter II has been given solely for purposes of comparison in the later chapters.

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